BISS Biodiversity Information Science and Standards

Biodiversity Information Science and Standards 3: e37654
doi: 10.3897/biss.3.37654

OPEN ACCESS

Conference Abstract

Making the Most of Ecological Data from the LTER Site: Manager's Point of View

Ana Genua-Olmedo[‡,§], Ana Isabel Lillebø[|,¶]

‡ on behalf of LTER Ria de Aveiro and PORBIOTA team, Aveiro, Portugal
§ Department of Biology & CESAM, University of Aveiro, Campus de Santiago, 3810-193 , Aveiro, Portugal
| on behalf of LTER Ria de Aveiro (as coordinator) and PORBIOTA team , Aveiro, Portugal
¶ Department of Biology & CESAM, University of Aveiro, Campus de Santiago, 3810-193, Aveiro, Portugal

Corresponding author: Ana Genua-Olmedo (ana.genua@ua.pt)

Received: 24 Jun 2019 | Published: 02 Jul 2019

Citation: Genua-Olmedo A, Lillebø A (2019) Making the Most of Ecological Data from the LTER Site: Manager's Point of View. Biodiversity Information Science and Standards 3: e37654. https://doi.org/10.3897/biss.3.37654

Abstract

Climate change is affecting the ecosystems and the services they provide for human well-being. For a better understanding of the causes and effects of this change in the functioning of ecosystems, detailed information of environmental parameters needs to be considered. Researchers generate multiple databases in their academic disciplines but often this data collection is not openly available nor does it fulfill the FAIR principles of Findability, Accessibility, Interoperability, and Reusability (Wilkinson et al. 2016). In this regard, Long-Term Ecosystem Research (LTER) plays an important role as an open research infrastructure that helps to integrate in-situ data, remote sensing products and modelling efforts, related to biodiversity and geodiversity.

Within LTER networks, the Dynamic Ecological Information Management System – Site and Dataset Registry (DEIMS-SDR), is used as the central site catalogue to provide information about facilities, ecosystems and environmental parameters in an openly available and standardized way (Wohner et al. 2019), organized by each location's site. These LTER sites from all around the globe, receive a special protection status due to their ecological value, which through research and observation, enhances the protection and conservation of these areas.

The LTER Ria de Aveiro site in Portugal (DEIMS.ID; LTER website), classified under the Natura 2000 network, is of paramount importance for the regional and national economy, agriculture, commercial fisheries, aquaculture, manufacturing, tourism, sports and recreational activities (e.g. Lillebø et al. 2019).

Since the establishment of the LTER Ria de Aveiro site in 2011, its research has focused on the contribution to the effective implementation of the Water Framework Directive and European Union Biodiversity Strategy targets. Studies have been developed to target key policies within Natura 2000 areas, Action 5 including habitat mapping and assessment of ecosystems and their services, data collection of important fauna groups, and engagement of stakeholders and common frameworks for the conservation of biodiversity. Currently, the site is part of the Portuguese e-Infrastructure for Information and Research on Biodiversity (PORBIOTA), being aligned with the European Research Infrastructure Consortium (LifeWatch-ERIC).

The LTER site team infrastructure includes laboratory facilities for field observation and environmental monitoring of water quality and environmental parameters that are used to feed models. A recently obtained Unmanned Aerial Vehicle (UAV), commonly known as drone, will contribute to ecological observations, generating data to provide biodiversity monitoring in space and time.

As LTER site managers and data providers, we have to deal with how to make the transition from our metadata to FAIR ecological data. Our aim is to deal with the implementation of standardized data profiles in our own data. For instance, to upload data files to the central repositories (e.g. DEIMS-SDR), to store and publish our raw data (e.g. B2Share), to create online distribution links and digital object identifiers (DOIs), and to use a convenient vocabulary (e.g. Environmental Thesaurus) to be understandable by everyone (Pérez-Luque et al. 2019). This substantially will increase the potential of databases in the scientific community, and will contribute to a successful building of LTER.

Keywords

LTER, DEIMS-SDR, Ria de Aveiro, data integration, FAIR

Presenting author

Ana Genua-Olmedo

Presented at

Biodiversity_Next 2019

References

- Lillebø A, Teixeira H, Morgado M, Martínez-López J, Marhubi A, Delacámara G, Strosser P, Nogueira AA (2019) Ecosystem-based management planning across aquatic realms at the Ria de Aveiro Natura 2000 territory. Science of The Total Environment 650: 1898-1912. https://doi.org/10.1016/j.scitotenv.2018.09.317
- Pérez-Luque AJ, Genua-Olmedo A, Rosário I, Torres L, Wohner C, Peterseil J (2019) Taller sobre Gestión de Información de la Red LTER Europa. Ecosistemas 28 (1): 127-128. https://doi.org/10.7818/ecos.1710
- Wilkinson M, Dumontier M, Aalbersberg IJ, Appleton G, Axton M, Baak A, Blomberg N, Boiten J, da Silva Santos LB, Bourne P, Bouwman J, Brookes A, Clark T, Crosas M, Dillo I, Dumon O, Edmunds S, Evelo C, Finkers R, Gonzalez-Beltran A, Gray AG, Groth P, Goble C, Grethe J, Heringa J, 't Hoen PC, Hooft R, Kuhn T, Kok R, Kok J, Lusher S, Martone M, Mons A, Packer A, Persson B, Rocca-Serra P, Roos M, van Schaik R, Sansone S, Schultes E, Sengstag T, Slater T, Strawn G, Swertz M, Thompson M, van der Lei J, van Mulligen E, Velterop J, Waagmeester A, Wittenburg P, Wolstencroft K, Zhao J, Mons B (2016) The FAIR Guiding Principles for scientific data management and stewardship. Scientific Data 3 https://doi.org/10.1038/sdata.2016.18
- Wohner C, Peterseil J, Poursanidis D, Kliment T, Wilson M, Mirtl M, Chrysoulakis N (2019) DEIMS-SDR – A web portal to document research sites and their associated data. Ecological Informatics 51: 15-24. https://doi.org/10.1016/j.ecoinf.2019.01.005